corresponding downstream channel of digitized data into analog communications to the at least one of the subscriber lines;

at least one digital signal processor (DSP) coupled to a network and the at least one DSP for processing downstream channels of data from the network to the subscribers and for processing upstream channels of digitized data from the subscribers to the network; and

I/O interfaces coupled to each other and each of said I/O interfaces coupled to a corresponding one of the at least one AFE and DSP, and the I/O interfaces for converting digitized data between the at least one DSP and AFE into upstream and downstream packets with headers for correlating each upstream and downstream packet both with a communication channel and with a targeted one of the at least one DSP and the at least one AFE.

4. (New)   The apparatus of Claim 3, wherein the I/O interfaces couple to one another via at least one of: at least one packet based bus and at least one packet based network.

5. (New)   The apparatus of Claim 3, further comprising:

a bi-directional bus coupling the at least one AFE to the at least one DSP via the corresponding I/O interfaces for the transport of upstream and downstream packets.

6. (New)   The apparatus of Claim 3, wherein the at least one AFE includes:

at least a first AFE coupled to a first set of the subscriber lines supporting a first set of communication channels.

7. (New)   The apparatus of Claim 6, wherein the at least a first AFE further comprises:

a plurality of modules coupled to one another to form both a transmit path for packetized conversion of data packets corresponding with downstream channels of data from the network into analog communications and a receive path for converting analog

communications from the subscribers to data packets corresponding with upstream channels of data from the subscribers; and

buffers between selected ones of the plurality of modules of the transmit path and the receive path for buffering downstream and upstream data packets to allow pipelined processing by selected ones of the plurality of modules on the transmit path and receive path of successive downstream and upstream data packets.

8. (New)   The apparatus of Claim 7, wherein selected successive packets within the transmit path and receive path pipelines of the at least a first AFE, exhibit different XDSL protocols and/or line codes; and

wherein further selected ones of the plurality of modules vary the processing of each of the selected successive packets to correspond with the corresponding XDSL protocol and line code.

9. (New)   The apparatus of Claim 7, wherein at least a corresponding one of the plurality of modules of the at least a first AFE includes:

an interpolator module on the transmit path which upsamples the downstream data packets in amounts which correspond with each associated downstream channel; and

a decimator on the receive path which decimates the upstream data packets in amounts which correspond with associated upstream channel.

10. (New)   The apparatus of Claim 7, wherein the at least a first AFE further comprises:

registers associated with selected modules on the transmit path and receive path for storing control parameters downloaded from the at least one DSP for each of the downstream and upstream channels; and

selected ones of the plurality of modules on the transmit path and receive path responsive to the control parameters stored in associated ones of the registers to vary the processing of corresponding ones of the upstream and downstream data channels.

11. (New)   The apparatus of Claim 6, wherein the at least one DSP further comprises:

a first DSP and a second DSP each coupled to the network and coupled via corresponding I/O interfaces with the at least first AFE; and the first and second DSP forming a logical DSP server for the at least first AFE.

12. (New)   The apparatus of Claim 6, further comprising:

a packet based bus coupling the I/O interfaces of the at least first AFE and the at least one DSP with one another for the transport of the upstream and downstream packets; and

the at least one DSP further regulating the transport of upstream and downstream packets on the bus to correspond with the bandwidth requirements for each channel within the first set of channels.

13. (New)   The apparatus of Claim 3, wherein the at least one DSP further comprises:

a plurality of modules coupled to one another to form both a transmit path for packet processing of downstream channels of data from the network and a receive path for packet processing of upstream channels of data from the subscribers to the network; and

buffers between selected ones of the plurality of modules of the transmit path and the receive path for buffering downstream and upstream data packets to allow pipelined processing by selected modules on the transmit path and receive path of successive downstream and upstream data packets.

14. (New)   The apparatus of Claim 13, wherein selected successive packets within the transmit path and receive path pipelines respectively of the at least one DSP, exhibit different XDSL protocols and/or line codes; and

wherein further selected ones of the plurality of modules vary the processing of each of the selected successive packets to correspond with the corresponding XDSL protocol and line code.

15. (New)   The apparatus of Claim 13, further comprising:

means for injecting control information for selected ones of the plurality of modules into selected ones of the upstream and downstream packets within the at least one DSP; and

selected ones of the plurality of modules responsive to the control information in selected ones of the upstream and downstream packets to vary the processing of corresponding ones of the upstream and downstream data channels within the at least one DSP.

16. (New)   An apparatus for distributed XDSL communication of data between a digital signal processor (DSP) and subscribers coupled to corresponding subscriber lines, and the apparatus comprising:

a plurality modules coupled to one another to form both a transmit path and a receive path for an analog front end (AFE), and the transmit path for packetized conversion of downstream data packets corresponding with downstream channels of data from the DSP into analog communications on corresponding subscriber lines and a receive path for converting analog communications from the corresponding subscriber lines to upstream data packets corresponding with upstream channels of data from the subscribers; and

buffers between selected ones of the plurality of modules of the transmit path and the receive path for buffering downstream and upstream data packets to allow pipelined processing by selected ones of the plurality of modules on the transmit path and receive path of successive downstream and upstream data packets.

17. (New)   An apparatus for distributed XDSL communication of data between subscribers coupled across subscriber lines with at least one analog front end (AFE) and a network, and the apparatus comprising:

a plurality modules coupled to one another to form both a transmit path and a receive path for a digital signal processor (DSP), and the transmit path for packetized processing of downstream data packets corresponding with downstream channels of data

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from the network to the at least one AFE and a receive path for processing upstream data packets corresponding with upstream channels of data from the at least one AFE; and

buffers between selected ones of the plurality of modules of the transmit path and the receive path for buffering downstream and upstream data packets to allow pipelined processing by selected ones of the plurality of modules on the transmit path and receive path of successive downstream and upstream data packets.

18. (New)   A method for distributed XDSL communication of data between a network and subscribers coupled to corresponding subscriber lines, and the method comprising:

converting analog communications from the at least one subscriber line to a corresponding upstream channel of digitized data, and a corresponding downstream channel of digitized data into analog communications to the at least one of the subscriber lines;

processing downstream channels of data from the network to the subscribers and upstream channels of digitized data from the subscribers to the network; and

packetizing the digitized data into upstream and downstream packets with headers for correlating each upstream and downstream packet both with a communication channel and with a targeted one of the converting and processing acts.

19. (New)   The method of Claim 18, further comprising:

pipelining the conversion between analog communications and digitized data in said converting act to concurrently subject to various stages of conversion upstream and downstream packets corresponding with a plurality of XDSL line codes and/or protocols.

20. (New)   The method of Claim 18, further comprising:

pipelining the processing in said processing act to concurrently subject to various stages of conversion upstream and downstream packets corresponding with a plurality of XDSL line codes and/or protocols.

21. (New)   A means for distributed XDSL communication of data between a network and subscribers coupled to corresponding subscriber lines, and the means comprising:

means for converting analog communications from the at least one subscriber line to a corresponding upstream channel of digitized data, and a corresponding downstream channel of digitized data into analog communications to the at least one of the subscriber lines;

means for processing downstream channels of data from the network to the subscribers and upstream channels of digitized data from the subscribers to the network; and

means for packetizing the digitized data into upstream and downstream packets with headers for correlating each upstream and downstream packet both with a communication channel and with a targeted one of the means for converting and the means for processing.

22. (New)   The means for distributed XDSL communications of Claim 21, further comprising:

means for pipelining at least one of the means for converting and the means for processing to concurrently convert or process packets corresponding with a plurality of XDSL line codes and/or protocols.

REMARKS

Applicant preliminarily amends the original claims as filed with the cancellation of Claims 1-2 and the addition of new claims 3-22. Support for the amended claims can be found throughout the Specification.

Entry of the proposed preliminary amendments is respectfully requested. Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned "Version with marking to show changes made." Favorable consideration is respectfully solicited.